

CLAIMS

What is claim is:

1. A light string comprising:
a plurality of light emitting diodes "LEDs" electrically coupled in series to form at least one series block, each series block being electrically coupled in parallel between each of a pair of wires having a source end and a terminal end, intermediate the source end and the terminal end, and
a first connector electrically connected at the source end which connector is adapted for direct electrical connection to an alternating current electrical power supply.
2. The light string of claim 1 in which the light string is adapted to accept alternating current electricity without an intervening conversion to direct current electricity.
3. The light string of claim 2 further comprising a pair of wires supporting the LEDs between the source end and the terminal end.
4. The light string of claim 1 in which the electrical power supply provides alternating current having an alternating current voltage of at least about 110 volts.
5. The light string of claim 4 in which each LED has a p-n junction defining a break down voltage above which voltage applied in reverse bias said p-n junction breaks down, and in which light string the alternating current voltage is less than the break down voltage.
6. The light string of claim 5 in which the alternating current voltage is in the range of about 110-220 volts.
7. The light string of claim 1 in which the alternating current has a frequency effective to cause each LED to emit pulsed light which the human eye perceives as continuous.

1 8. The light string of claim 7 in which the frequency is at least about 50 Hz.

Sub A3
1 9. The light string of claim 1 in which the first connector is polarized, and which light string
2 further comprises a second polarized connector electrically connected to the pair of wires at the terminal
3 end, said second polarized connector being adapted to couple with a first polarized connector of another
4 light string, thereby providing for coupling of multiple light strings in an end-to-end arrangement.

5 10. The light string of claim 1 in which the number of LEDs of each series block is at most a
6 maximum number determined by the electrical power supply.

1 11. The light string of claim 1 in which each LED has a corresponding light output color and
2 all of the LEDs in each series block is either of the same color or of different colors.

1 12. The light string of claim 11 in which the LED's in each series block are arranged by color
2 either in a non-random order or a pseudo-random order.

1 13. The light string of claim 11 in which at least one LED comprises a housing and a fiber-optic
2 bundle removably mounted to the housing operative to diffuse light output of the LED through the
3 fiber-optic bundle.

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1 14. The light string of claim 1 in which the LED are offset from the wires and arranged relative
2 to a wire axis.

1 15. The light string of claim 14 in which each LED is arranged parallel to the wires to create
2 a straight arrangement.

1 16. The light string of claim 15 in which the LEDs in each series block are uniformly spaced
2 apart.

1 17. The light string of claim 14 in which the LEDs are arranged in offset groupings, each offset
 2 grouping having a length relative to the LEDs therein, and are arranged perpendicular to the wires to
 3 create a light string having a curtain arrangement, wherein the light string is comprised of offset
 4 groupings which are spaced either uniformly or nonuniformly in either a periodic or pseudo-random
 5 arrangement.

1 18. The light string of claim 17, wherein the LEDs are uniformly spaced by a first distance
 2 within an offset grouping and each offset grouping is uniformly spaced by a second distance along the
 3 drive wire axis.

1 19. The light string of claim 1, wherein the lamp holder and the lamp base of the LEDs are
 2 adapted to comprise cooperative notches or keyed offsets for setting the lamp holder into the lamp base
 3 and thereby orienting and aligning the LED by its polarity.

1 20. The light string of claim 1, wherein the lamp assembly of the LEDs is adapted to comprise
 2 cooperative notches or keyed offsets for setting the lamp bulb into the lamp assembly and thereby
 3 orienting and aligning the LED by its polarity onto the lamp holder on the light string.

1 21. The light string of claim 6, wherein the ac source is 220 VAC.

1 22. The light string of claim 21, wherein the maximum number of LEDs in a series block is 100.

1 23. The light string of claim 6, wherein the ac source is 110 VAC.

1 24. The light string of claim 23, wherein the maximum number of LEDs in a series block is 50.

1 25. The light string of claim 1, wherein the light string comprises a plurality of series blocks.

1 26. The light string of claim 9, wherein the first polarized connector is a polarized plug.

1 27. The light string of claim 26, wherein the second polarized connector is a polarized socket.

Sub A8
1 28. The light string of claim 1, wherein a light string further comprises a lossy fiber optic rod,
2 having a diameter equal to a diameter of a corresponding LED lens, and a fiber housing, wherein the
3 fiber housing adaptably receives the rod and LED lens into opposing ends, cooperatively, thereby
4 creating an optical icicle feature.